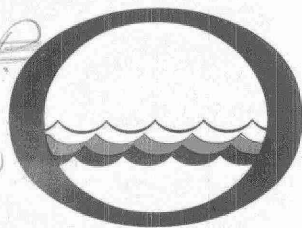


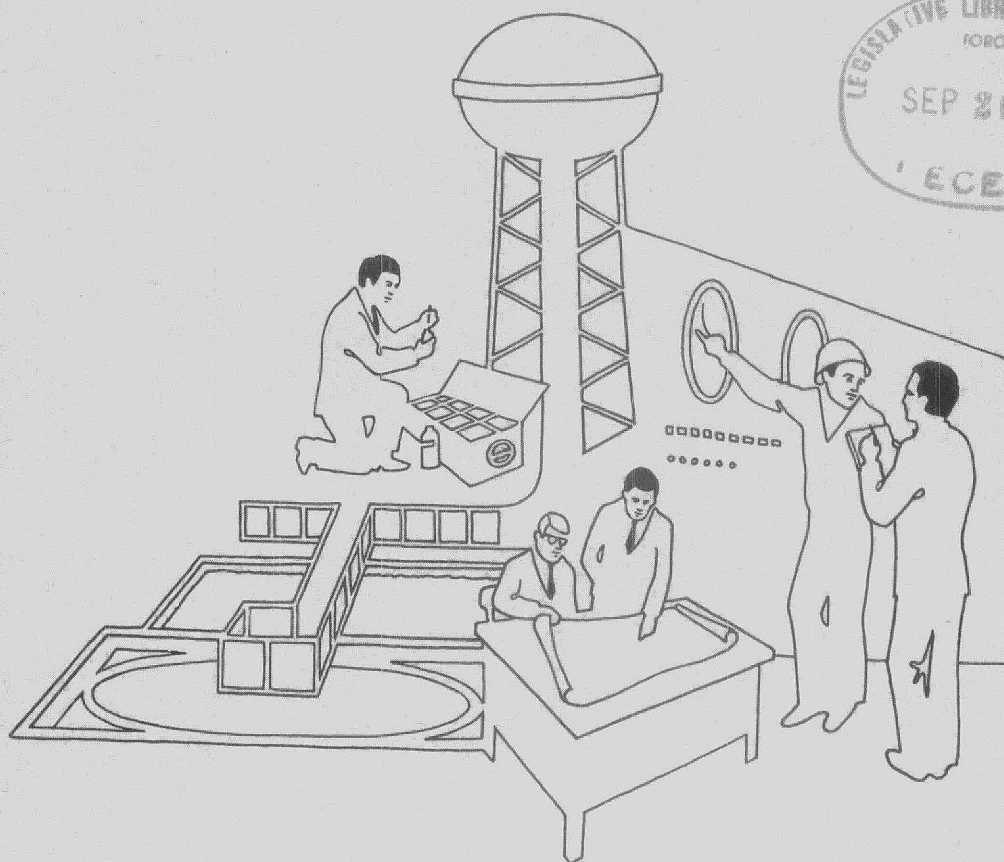
CA2 ON
WR 610
1971
M34



Water management in Ontario

Ontario
Water Resources
Commission

Water Pollution Survey
District
Engineers
Branch



WATER POLLUTION SURVEY

OF THE

VILLAGE OF MILDMAY

COUNTY OF BRUCE

1971

Copyright Provisions and Restrictions on Copying:

This Ontario Ministry of the Environment work is protected by Crown copyright (unless otherwise indicated), which is held by the Queen's Printer for Ontario. It may be reproduced for non-commercial purposes if credit is given and Crown copyright is acknowledged.

It may not be reproduced, in all or in part, for any commercial purpose except under a licence from the Queen's Printer for Ontario.

For information on reproducing Government of Ontario works, please contact ServiceOntario Publications at copyright@ontario.ca

L220N
WR 616
1971
M34

R E P O R T

on

WATER POLLUTION SURVEY

of the

VILLAGE OF MILD MAY

Township of Carrick

County of Bruce

District Engineers Branch

Division of Sanitary Engineering

Date of Sampling: August 5, 1971

INDEX

	<u>Page</u>
INTRODUCTION	1
Location	1
Population	2
Soil Conditions	2
Existing Services	
Sewage	2
Water	3
RECREATIONAL USE	3
PAST SURVEYS	3
SAMPLE RESULTS	4
DISCUSSION OF RESULTS	5
DISCUSSION	7
CONCLUSION	8
RECOMMENDATIONS	8
APPENDIX I	
Interpretation and Significance of Analyses Results	
APPENDIX II	
Sample Results	
APPENDIX III	
Sample Locations	

INTRODUCTION

The purpose of this survey was to locate and record significant sources of water pollution within the Village of Mildmay. Surveys of this nature are conducted routinely throughout the Province by the Sanitary Engineering Division of the Ontario Water Resources Commission and form a basis for evaluating any existing or potential sources of pollution.

Recommendations are subsequently made pertaining to pollution abatement.

The appendices to this report include a tabulation of the sample results, an interpretation of the laboratory tests and a map of the area showing the sampling point locations.

LOCATION

The Village of Mildmay is located in the Township of Carrick in the County of Bruce, approximately five miles south of the Town of Walkerton on the King's Highway No. 9. The Otter Creek, within the Saugeen water shed, flows through the Village.

POPULATION

The present population of the Village is 990 persons. (1971 Municipal Directory).

SOIL AND TOPOGRAPHIC CONDITIONS

There are four basic regions within the Village boundaries, the Harriston group, which is a loam, provides good drainage and is smooth to moderately sloping in nature while the Parkhill group is basically similar to the Harriston group except for poor drainage properties. The Donny brook group is a sandy loam and provides good drainage but is irregular to steeply sloping. The fourth group is the Bottom land lying along Otter Creek and is variable in nature.

EXISTING SERVICES

Sewage

There are no municipal facilities for the collection and treatment of domestic or industrial sewage within the Village. The disposal of sanitary wastes is left to the individual property owners and in most cases these consist of septic tank and tile field systems.

Water

The municipal water works supply consists of one drilled well completed in 1968 and located on Absalom Street. The New Well is 114 feet deep and capable of producing 190 IGPM. The two wells, one on Elora Street and the other on Absalom Street are no longer in service.

RECREATIONAL USES OF OTTER CREEK

Otter Creek is dammed upstream of the Village to provide a swimming and fishing area. A conservation park is located downstream of the Village on Highway No. 9 to Walkerton, this site is provided with drinking water, picnic facilities and a wading pool for youngsters.

PAST SURVEYS AND REPORTS

In 1963 the Consulting Engineering firm of Proctor and Redfern prepared a report on the Sanitary Sewage Systems for the Village. The report was initiated due to pollution of the Otter Creek. It was recommended that the most satisfactory method of pollution control was the construction of a sanitary sewage system.

In 1964 the Sanitary Engineering Division of the Commission conducted a Pollution Survey of the Village. The main source of pollution was caused by illegal private sewer connection to storm sewers. The survey recommended that discharging of wastes to Otter Creek be discontinued.

In 1968 the firm of Proctor and Redfern prepared a report for the Village. The purpose of the report was to design a sanitary collection and treatment system with a design period of 20 years.

In 1971 the Biology Branch of the Commission conducted a brief biological survey of Otter Creek. The decline in water quality was attributed in part to domestic wastes generated by the Village. The other sources are under review by the Commission.

SAMPLE RESULTS

The chemical and bacteriological sample results and sampling location of this survey may be found in the Appendices II & III respectively.

DISCUSSION OF RESULTS

A total of 14 bacteriological and 12 chemical samples were collected from random locations along Otter Creek and throughout the Village.

Samples Nos. 1, 2, 3, 6, 10 and 14 are samples of Otter Creek as it passes through the Village. The quality of the water continually degenerated, the B.O.D. increased from 1.4 to 1.6 ppm, the fecal bacteria concentration increased from 10 to 950 per 100 ml but the most significant change was the coliform bacteria count which increased to 450,000 from 250 per 100 ml.

The upper bacteria limit set by the Commission for surface water is 100 fecal and 1000 coliform bacteria per 100 ml. Using these guidelines, the water above the first dam was acceptable for public recreation but the water below the Elora Street Bridge was unsafe.

The Sample Points Nos. 11 and 12 are the Elora Street storm sewers where they discharge to Otter Creek. The chemical and bacteriological samples indicated by their strength and nature that the discharge was raw sewage. Sample Point No. 5, also from a storm sewer, discharging to Otter Creek contained a very high coliform bacteria count.

The bacteriological sample No. 4 was collected from a 4" diameter steel pipe located behind the Mildmay Threshers. The sample contained a very high fecal and coliform bacteria count. The area around the outfall showed signs of decomposing sewage and emitted a septic odour.

Samples Nos. 7, 8 and 9 were collected from catch basins along Absalom Street, two to the west of Otter Creek and one to the east. All three sample points indicated that domestic sanitary wastes were gaining access to the storm sewers.

DISCUSSION

It is evident by the sample analysis that untreated or partly treated domestic wastes from the Village are gaining access to the Otter Creek by way of illegal storm sewer connections, faulty septic tank systems or direct discharge.

The Elora Street storm sewers flowing through the business section are the largest contributor of domestic wastes to Otter Creek. It should be noted that directly downstream of these outfalls is a conservation park.

Several small outfalls from private buildings were noted but were dry at the time of the survey.

It is the opinion of the Bruce County Health Unit that the present situation cannot be corrected by the installation or the repair of faulty septic tank systems.

CONCLUSION

As a result of this survey and previous studies conducted in the Village of Mildmay, it may be concluded that domestic wastes originating from locations throughout the entire Village, are being discharged to Otter Creek. Correction of the adverse conditions found during this survey may only be accomplished by the severance of all private sewage connections to the storm sewers and the installation of a municipal sewage collection and treatment system.

RECOMMENDATION

It is the recommendation that the Village of Mildmay take immediate action to eliminate all sewage discharges to Otter Creek by the provision of a municipal sewage collection and treatment system.

Prepared by:

KD Anderson

K. D. Anderson,
District Engineers Branch,
Division of Sanitary Engineering.

/ed

APPENDIX I

INTERPRETATION AND SIGNIFICANCE OF ANALYSES RESULTS

For convenience in the interpretation of laboratory analyses results, the Ontario Water Resources Commission water quality objectives for surface water drains and water-courses are listed as follows:

Bacteriological Examination

The membrane filter (MF) technique is employed at OWRC Laboratories to obtain a direct enumeration of coliform organisms and is reported per 100 millilitres (ml) of the sample.

The presence of coliforms may indicate pollution from both fecal and non-fecal sources while E. Coli organisms indicate pollution of intestinal origin only.

Sanitary Chemical Analyses

Biochemical Oxygen Demand (BOD)

The BOD of sewage or polluted waters is the oxygen required during stabilization of the decomposable organic material by aerobic biochemical action. A five-day BOD determination with incubation at 20 degrees Centigrade is reported.

A high BOD is indicative of organic or chemical pollution. A desirable upper limit in surface water is four (4)* parts per million (ppm) while the objective maximum in waste discharges to a watercourse is 15 ppm.*

Solids

The value for total solids, expressed in parts per million (ppm), is the sum of the values for the suspended and dissolved matter in water. The concentration of suspended solids which indicates the measure of undissolved solids of organic or inorganic nature is generally the most significant of the solids analyses in regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habit of fish. The OWRC's objective for discharge is a suspended solids concentration of not greater than 15 ppm.*

* See next page.

Alkyl Benzene Sulfonate (ABS)
-(Anionic Surfactant) - - - - -

The surfactant is a synthetic organic chemical which is used as a principal ingredient of modern household detergents. The popular use of synthetic detergents for general cleaning purposes has resulted in the incidence of residual ABS in waste discharges. Therefore, the presence of detergents in water samples is usually an indication of pollution from domestic sources.

- * Under very restrictive environmental conditions such as low stream flow or intensive water use, these quality criteria and effluent requirements may have to be up-graded or become more restrictive.

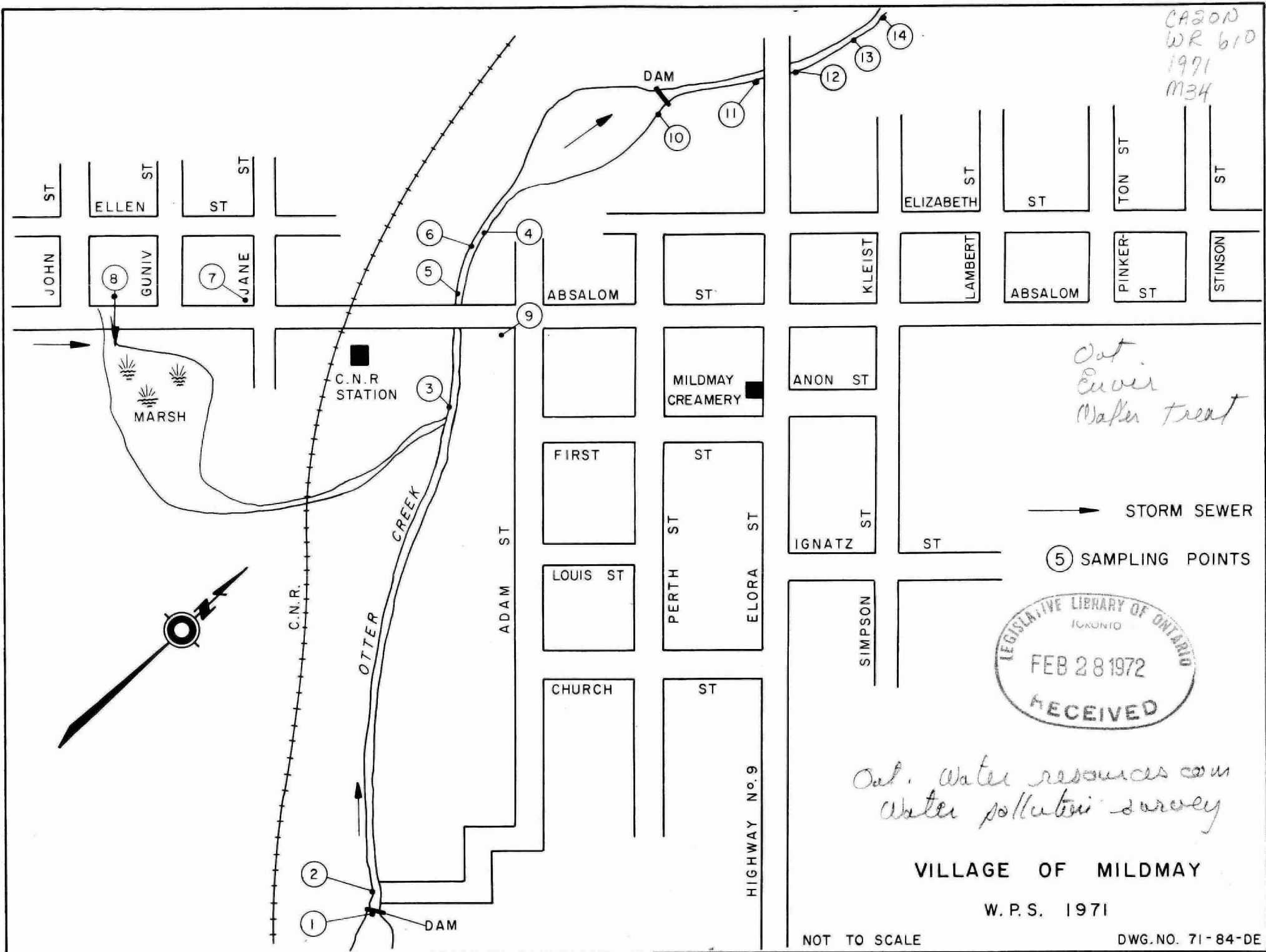
APPENDIX II

Sample Locations

Date: August 5, 1971.

<u>Point No.</u>	<u>Sample Location</u>	5-Day <u>BOD</u> (ppm)	Solids <u>Susp.</u> (ppm)	<u>ABS</u> (ppm)	<u>MEMBRANE FILTER</u>	
					<u>Fecal Coliform</u> <u>per 100 ml</u>	<u>Coliform</u> <u>per 100 ml</u>
1	Otter Creek above Dam.	1.4	5	0.0	10	250
2	Otter Creek 400 ft. below Dam.	1.2	5	0.0	10	2,900
3	Otter Creek 400 ft. upstream of Absalom Street.	0.8	5	0.0	80	2,000
4	4" Dia Steelpipe outfall of Mildmay Threshers.				24,000	57,000
5	Storm outfall north side of Absalom Street Bridge.	3.5	10	0.0	400	310,000
6	Otter Creek 400 ft. downstream of Absalom Street Bridge.	1.2	5	0.0	2,600	2,700
7	Catch basin north-west corner of Absalom and Jane Streets.	6.0	160	0.3	80	400
8	Catch basin east of John Street on Absalom Street.	4,500	60	0.7	60	5,600,000
	Chemical sample non representative, possible formaldehyde contamination.					
9	Catch basin SS of Absalom Street across from Mildmay Threshers.	40	330	0.4	590	18,000
10	Otter River upstream of Park Dam	1.4	5	0.0	150	4,300
11	Outfall SW corner under Elora St. Bridge	200	190	2.5	1,700,000	192,000,000
12	Outfall SE of Elora St. Bridge to River	48	45	5.0	94,000,000	37,000,000
13	Outfall below Park Bridge approx. 10'				20	450
14	Otter River approximately 50' below Park Bridge.	1.6	5	0.0	910	450,000

CASON
WR 610
1971
M34



*Out. Cuver
Water Treat*



*Out. water resources com
water pollution survey*

VILLAGE OF MILD MAY

W.P.S. 1971

NOT TO SCALE

DWG.NO. 71-84-DE



96936000009343